

A.D. 1909. JULY 1. N^o. 15,422.
DYBERG'S COMPLETE SPECIFICATION.

(1 SHEET)

Fig. 1.

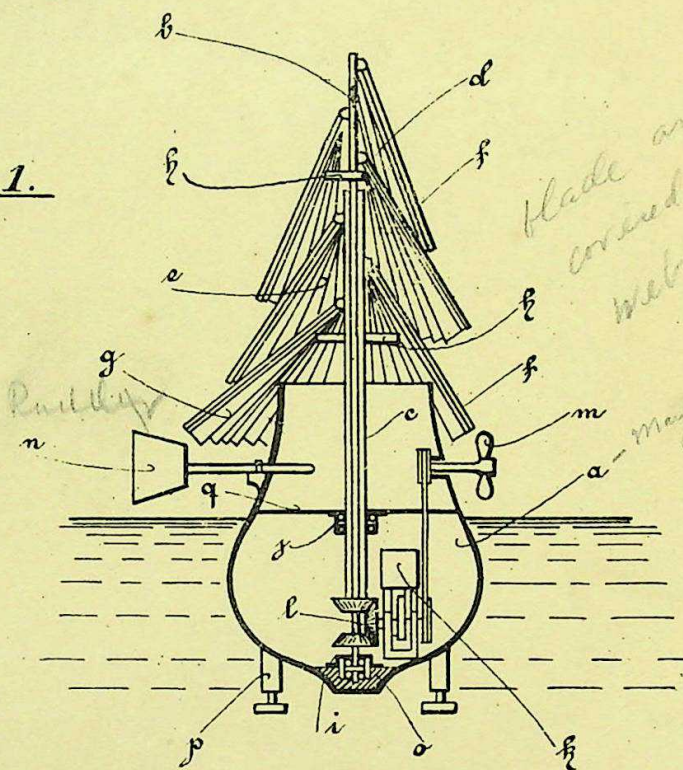
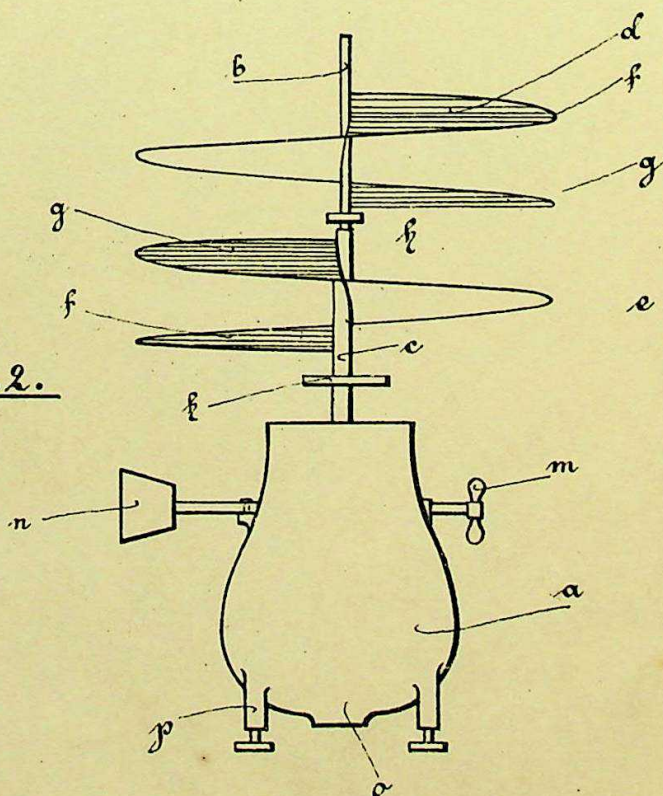


Fig. 2.



Prof. Swed 20,811 (294-19)

[This Drawing is a reproduction of the Original on a reduced scale.]

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N° 15,422



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Date of Application, 1st July, 1909—Accepted, 10th Feb., 1910

COMPLETE SPECIFICATION.

“Improvements in Flying Machines.”

I, ERIK REINHOLD GOTTFRID DYBERG, of 22, Stampgatan, Gothenburg, Sweden, Captain, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

- 5 This invention relates to such flying machines as are lifted by means of rapidly revolving vertical screw propellers of the same size one right handed and the other left handed which rotates in opposite directions around a common vertical turning axis, the car being constructed so that the flying machine may float in water when required.
- 10 The invention consists in a flying machine in which the car is shaped as a solid of revolution for instance like a bottle and fitted with a keel so that it will be stable when floating, and in which the propellers for raising the machine are adapted to fold down upon their actuating shaft.
- 15 A flying machine constructed in accordance with the invention is shown in the accompanying drawings wherein
- Figure 1 is a sectional elevation of the flying machine with the screw propellers out of action and the airship floating on water and
- Figure 2 an outside elevation of the machine when flying.
- 20 The car *a* is made of a light and waterproof material for example aluminium and is shaped as a solid of revolution for instance like a bottle thus being wider at the lower part than at the top. Two vertical shafts *b* and *c* are rotatably mounted in the centre of the car, one being formed as a sleeve through which passes the other shaft and which projects beyond the sleeve shaft. Screw propellers *d* and *e* are attached one to the top of each shaft which screws are
- 25 of opposite hand but otherwise the same. The screw surfaces comprise arms *f* projecting radially from the respective shafts covered with air-tight webbing *g* or other suitable material. The arms are hinged on the shafts so that they may fold down by gravity as in Figure 1 similar to the folding of an umbrella, when the apparatus is in rest. A suitable stopping device prevents the arms
- 30 from being swung up above the horizontal position, when in use. When the arms are folded down they rest on discs or rings *h* on the shafts under the screw surfaces so that the arms or the covering webs of the screws are not liable to become entangled with one another. The two shafts are at their lower ends provided with collars which work on thrust bearings *i* and *j*
- 35 respectively in order to transmit the lifting power of the screws to the car. The screws are set to rotate in opposite directions by a suitable motor *k*, which drives the shafts *b* and *c* through suitable gearing *l*. To propel the apparatus against the wind there are screw propellers *m* which may be actuated in any suitable manner from the motor *k* or from a separate motor. On a suitable
- 40 point of the car there may be placed a rudder *n*. To render the apparatus stable when floating on the water the bottom of the car is provided with a keel or the like *o*. When on solid ground the apparatus rests on feet *p* placed under the car and being, as is well known of a yielding nature in order to act as buffers. To protect the thrust bearings *i* and *j* from shock when the machine
- 45 touches the ground the bottom of the car under the thrust bearings may be curved inwards like the bottom of a bottle in order to raise the said bearings

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Dyberg's Improvements in Flying Machines.

above those parts of the bottom which make contact with the ground. At a suitable height above the bottom the car may be provided with a deck *q* and the wall of the car above the deck with windows. When the apparatus rests on the ground or floats on the water the screw propellers *d* and *e* hang down as a folded umbrella thus minimising their resistance to the wind and diminishing the risk of the apparatus capsizing. When the motor is started the screw propellers raise themselves partly by air pressure and partly by centrifugal force. As the two screw propellers always work in opposite directions and under the same conditions the friction acts on the thrust bearings of the car in such a way that the car does not turn round.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A flying machine of the kind described having a car, shaped as a solid of revolution, for instance like a bottle and provided at the bottom with a keel or the like to augment its stability when floating, substantially as described.
2. In a flying machine as claimed in Claim 1; lifting propellers comprising a number of arms projecting radially from their vertical actuating shaft and covered with webbing or other suitable material, and hinged to the shaft so that they may be folded down similarly to the ribs of an umbrella, and means for preventing the arms from being raised above a horizontal position when in use.
3. The improved flying machine, substantially as described and as illustrated in the accompanying drawings.

Dated this 1st day of July, 1909.

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